

Figure 1

Isoprenoid Pathway in *E. coli*

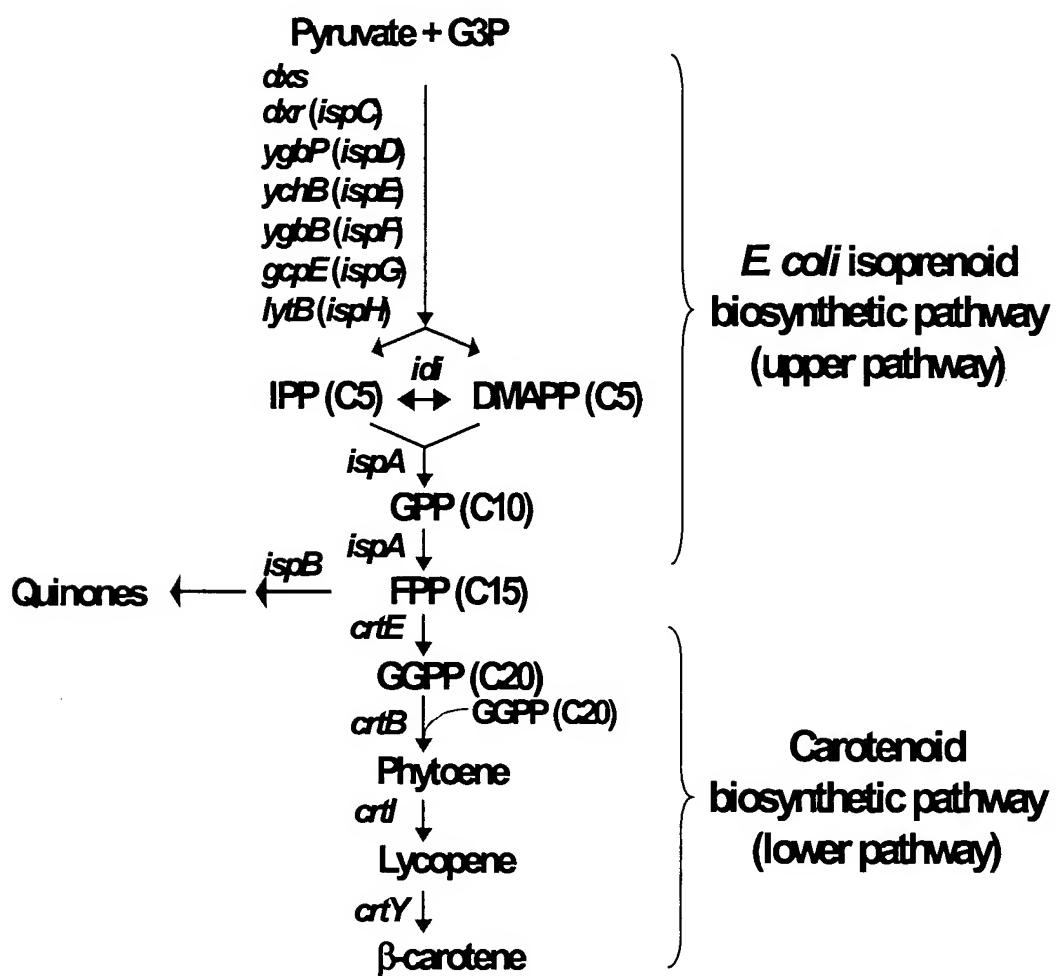
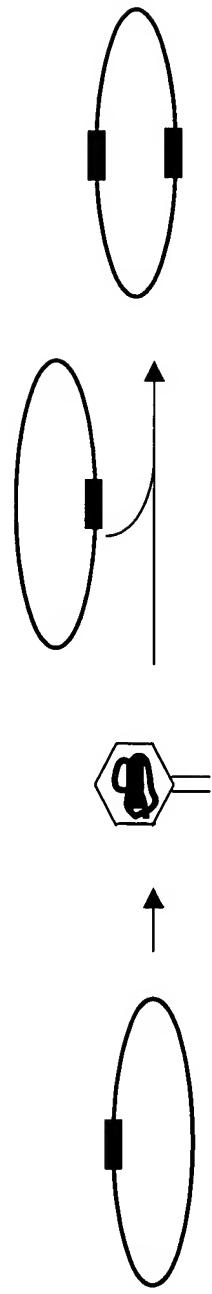


Figure 2

- Conventional P1 transduction:



- Combinatorial P1 transduction:

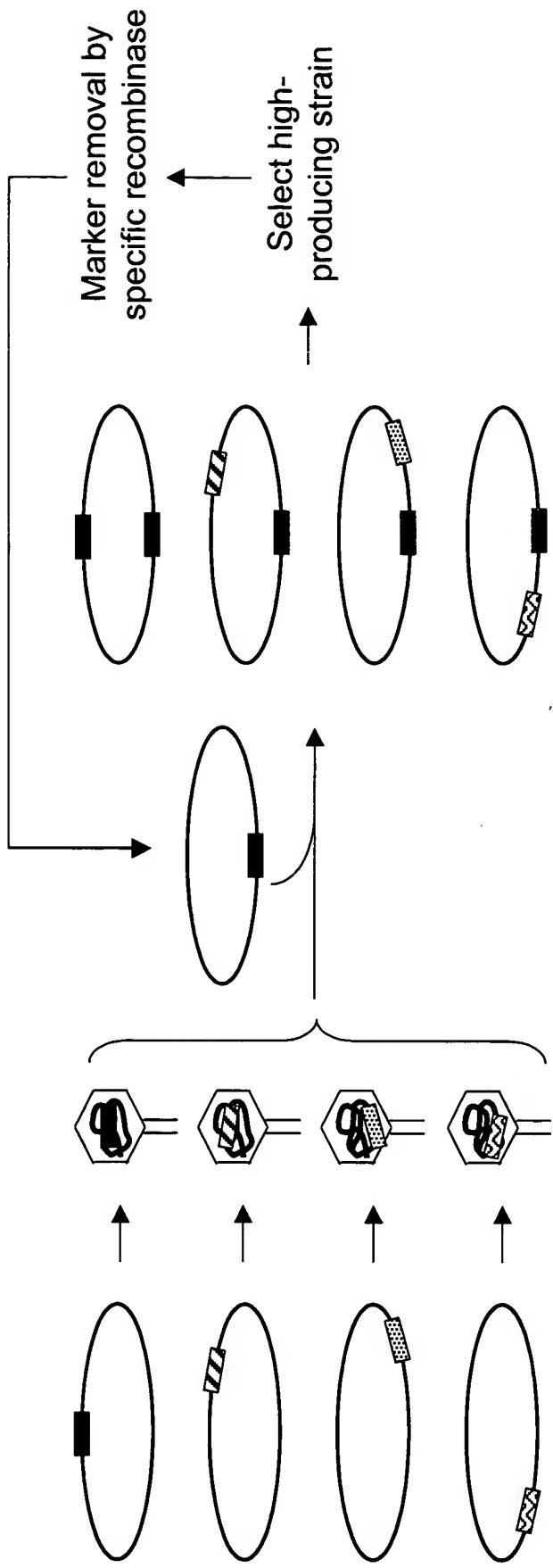
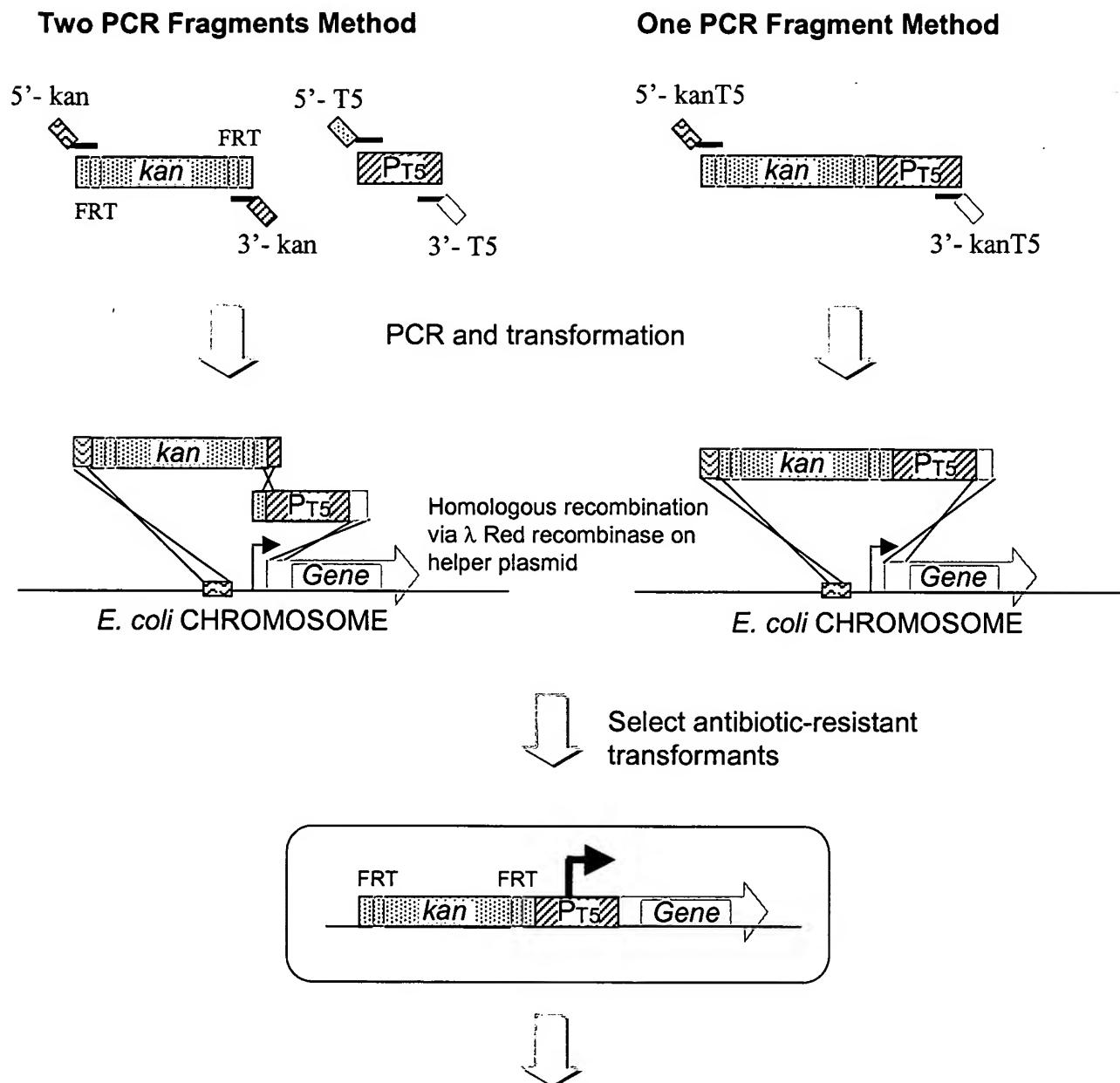


Figure 3



E. coli strains constructed via the above method: Chromosomal integration of phage T5 promoter(P_{T5}) in the front of the isoprenoid genes

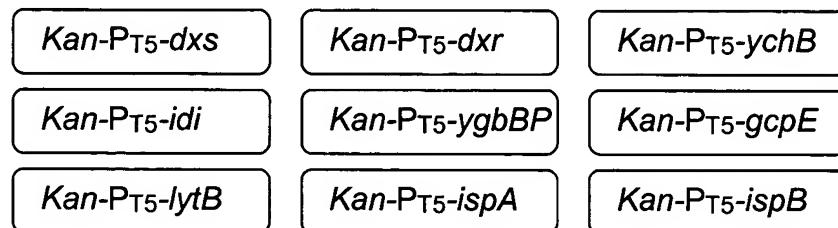


Figure 4

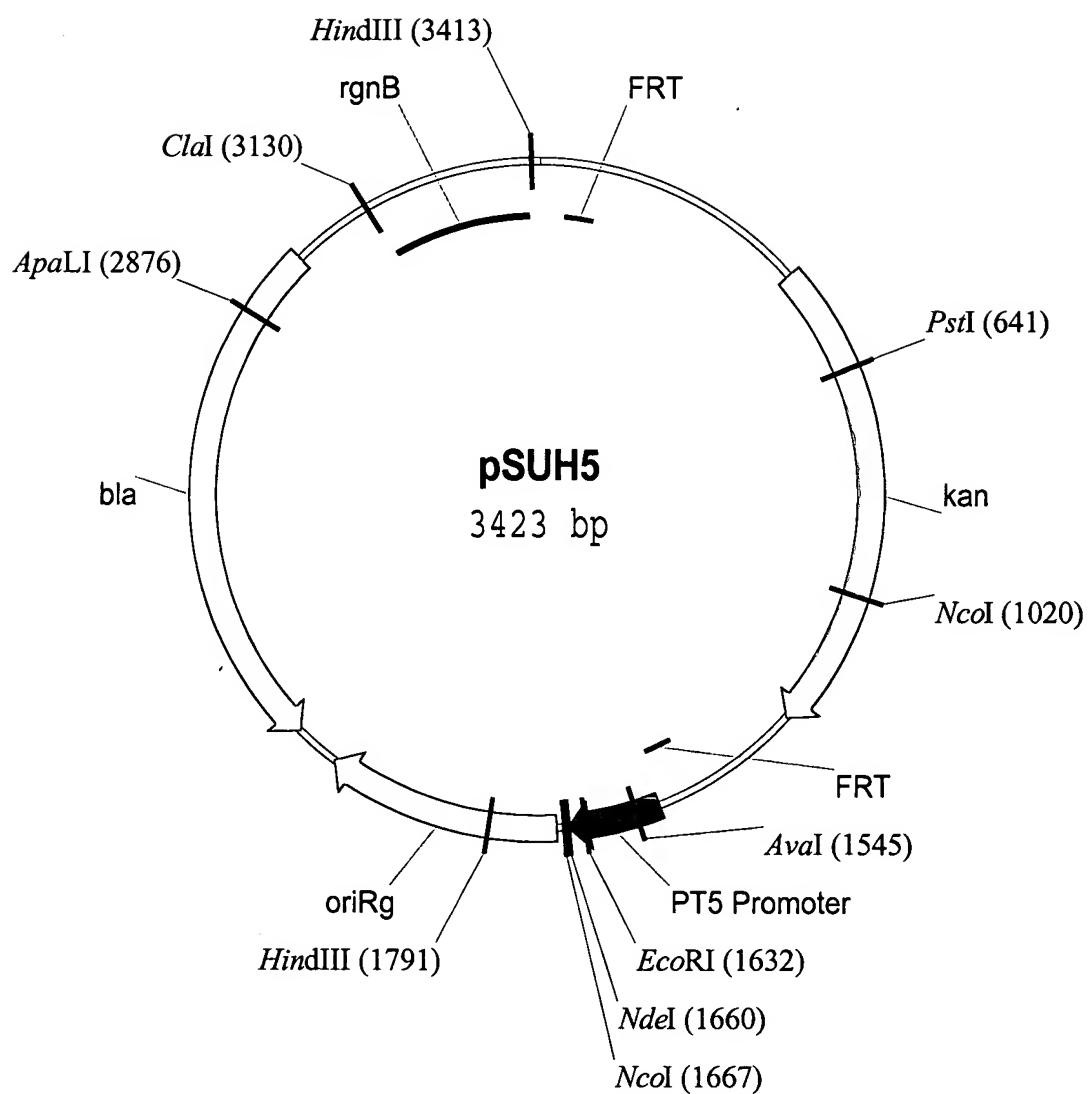


Figure 5

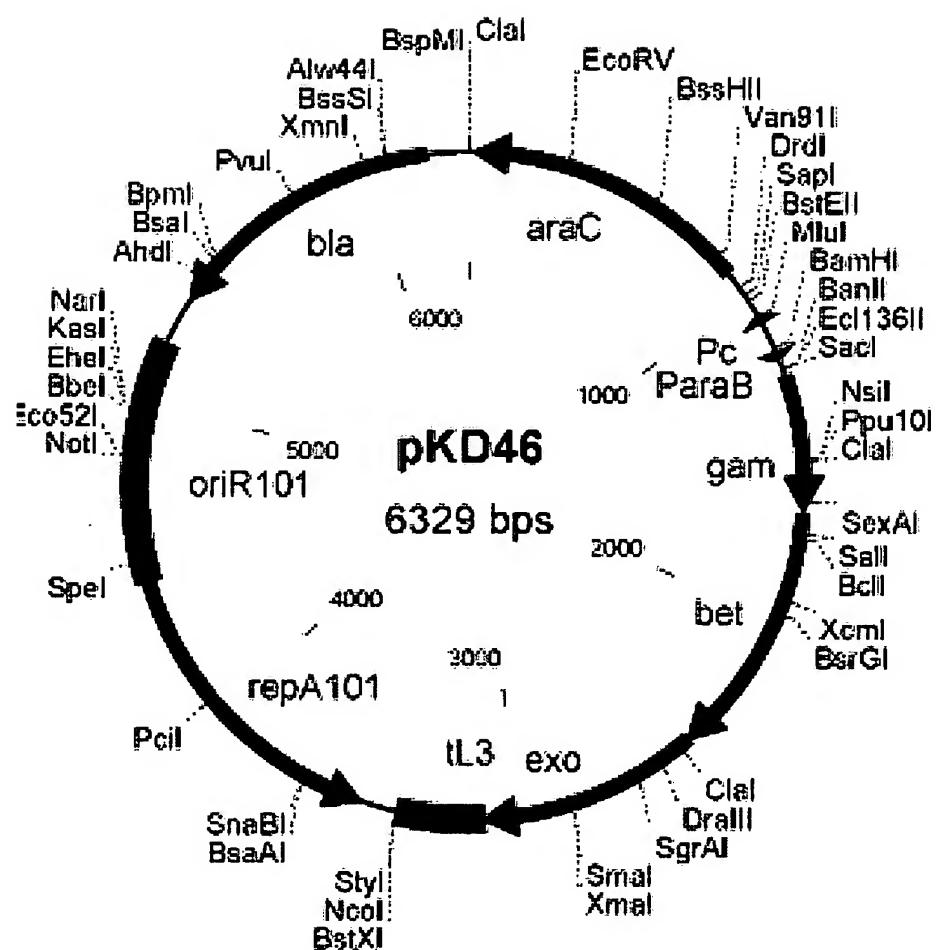
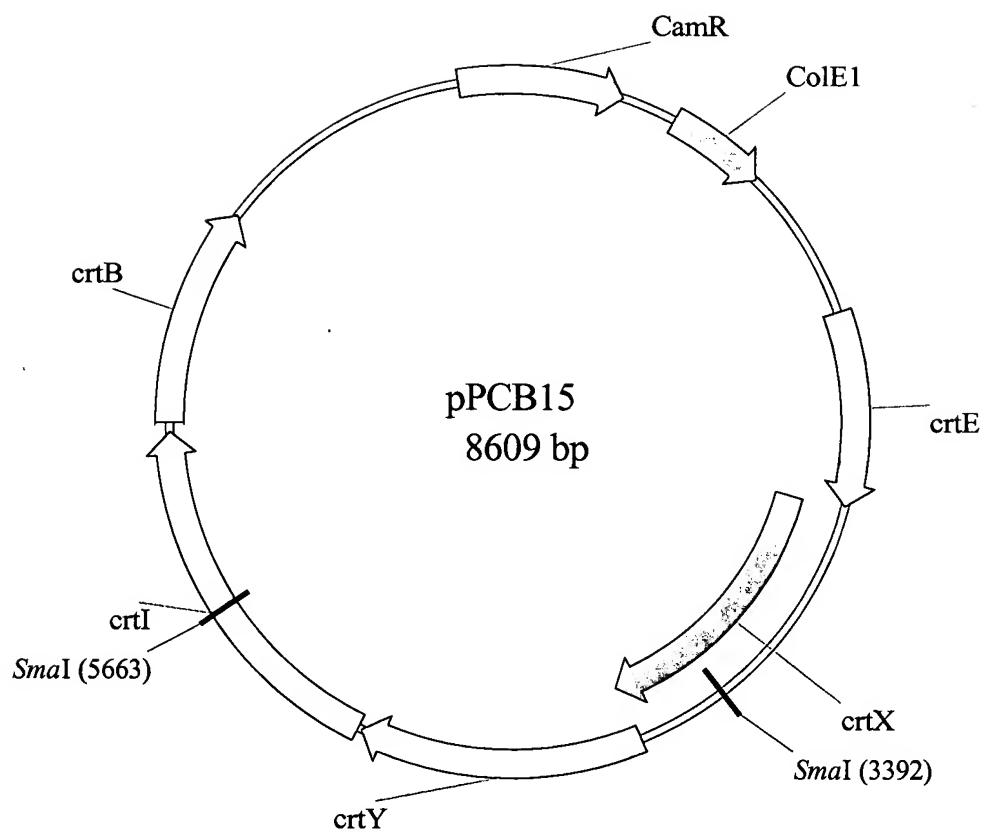


Figure 6



Combinatorial Approach to Increase β -carotene

Figure 7

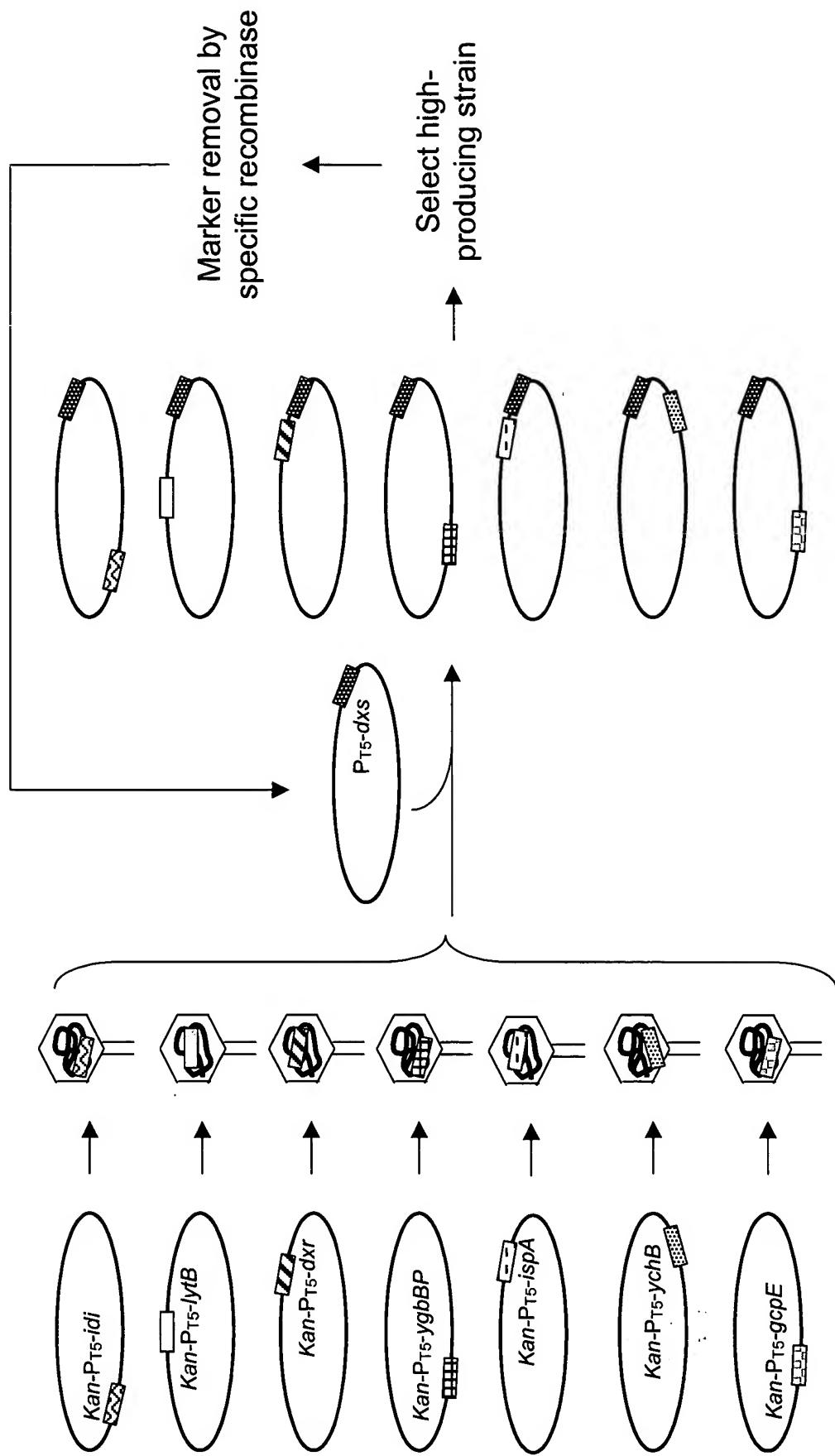


Figure 8

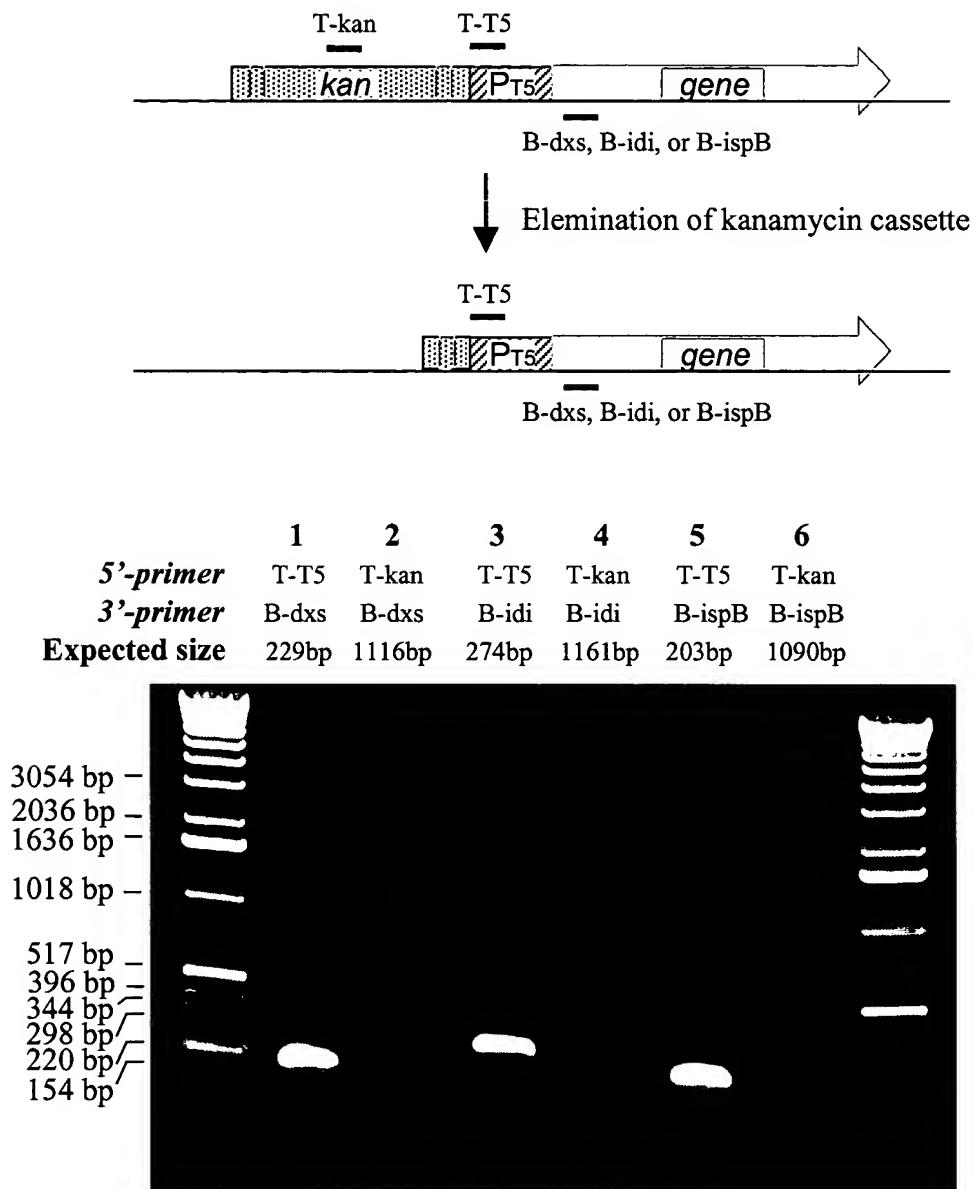
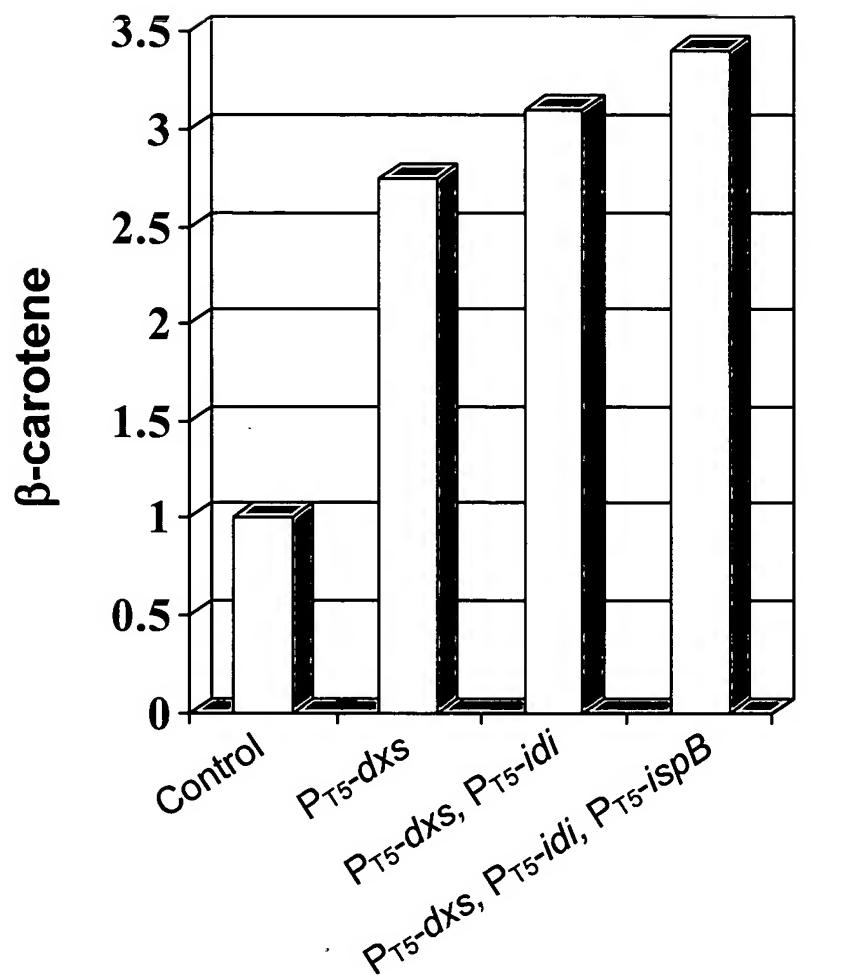


Figure 9



Control: *E. coli* pPCB15 containing carotenoid biosynthesis gene cluster (*crtEXYIB*)